in the USA in 2002. Inpatient care costs accounted for more than 60% of total cost. **CONCLUSIONS:** Although the economic impact of the VTE in cancer patients as well as the impact of VTE on patients' quality of life is not well studied, the present review demonstrate that there is a substantial humanistic and economic burden associated with VTE in cancer patients.

PCN68

A MICRO-COSTING OF THE INPATIENT MANAGEMENT OF FEBRILE NEUTROPENIA IN THE IRISH HEALTH CARE SETTING

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OBJECTIVES: Febrile neutropenia (FN) is a potentially life-threatening complication of chemotherapy which generally prompts immediate hospitalisation. The study objective was to evaluate the resource use and cost of hospitalisation for FN within the Irish Health care setting. Micro-costing techniques were used. The health payer perspective was adopted. **METHODS:** This was a single centre study. Adult cancer patients undergoing chemotherapy, who were subsequently admitted for FN, were identified prospectively. Patient medical records were reviewed retrospectively. **RESULTS:** Patient demographics and resource utilisation data (pertaining to the management of FN) were obtained from a cohort of 32 patients (69% female, mean age = 58.8 years). Twenty-five percent of patients had more than one FN episode. In total, 42 FN episodes were captured; 60% of episodes had occurred within the first two cycles of chemotherapy. The bootstrap estimation was used to determine mean hospital length of stay (LOS) with standard deviation (± SD) and mean costs (± SD). The mean LOS was 7.3 (± 0.5) days. The mean cost per FN episode was €8,915 (± 718). The major cost driver was hospital bed-stay (mean cost of €6,851 (± 549)). Other cost drivers included antibacterial treatment at €760 (± 156), laboratory investigations at €538 (± 47) and the requirement for blood bank products at €525 (± 189). **CONCLUSIONS:** To our knowledge, this is the first investigation of the cost of chemotherapy induced FN within the context of the Irish Health care setting. Our results will be used in cost-effectiveness analyses of novel chemotherapeutic agents and interventions which prevent or treat FN.

PCN69

THE COST OF NSCLC IN FRANCE

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Though lung cancer, and the most common subtype, non-small cell lung cancer (NSCLC), occur frequently, there are limited data quantifying the economic burden of these cancers in Europe.**OBJECTIVES:** To describe the burden of NSCLC in three European countries using patient-level data from commercially available health care data. **METHODS:** Patient-level data were obtained for France from the PMSI (French National discharge database; containing data from publicly-funded hospitals) from 2008 to 2011 while excluding patients with a prior-hospitalization for lung cancer in the preceding 24-month period (2006-2007). As NSCLC does not have a separate ICD-10 code, expert opinion was used to eliminate patients diagnosed with non-NSCLC, based on particular procedures and tests. Hospital resource use was valued using French DRG tariffs. Chemotherapy regimens were valued using official rates. **RESULTS:** A total of 61,144 patients were identified with lung cancer in 2008. 19,099 were excluded because of prior lung cancer diagnoses. Of this cohort of 42,043 patients, 25,054 were exclusively treated in the public setting; 15,061 were identified as NSCLC and were considered in this analysis. Hospital-related costs cumulated over the follow-up period were estimated at €337,382m, with chemotherapy costs representing 9%. Mean cumulated hospital-related cost per-patient were estimated at €22,401 over the follow-up period. Terminal care represented a mean per-patient cost of €10,440. Adverse events triggering hospital-expenses represented a mean per-patient cost of €5,694. Patients ≤ 55 years incurred higher costs per-person over the follow-up period than patients >55 years; €25,386 vs. €21,368. These extra costs were mostly driven by chemotherapy costs(€13,287 vs. €10,561). Patient with metastases incurred higher costs over the follow-up period than patients without these, €23,118 vs. €21,934. **CONCLUSIONS:** This is one of the first analyses quantifying the economic burden of NSCLC. The burden for France is substantial. Subsequent analyses will allow for comparisons of this burden across other countries.

PCN70

CHEMOTHERAPY TREATMENT PATTERNS, HEALTH CARE COSTS, AND MORTALITY OF LUNG CANCER PATIENTS IN TAIWAN – A LONGITUDINAL STUDY BETWEEN 2000 AND 2008

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OBJECTIVES: To examine chemotherapy treatment patterns, health care costs, and mortality of lung cancer patients in Taiwan. **METHODS:** This study analyzed medical and pharmacy claims from a random sample of one million taken from all beneficiaries covered under Taiwan's national health insurance in 2000. Newly diagnosed lung cancer patients between 2000 and 2008 (first observed diagnosis as the index date) were identified based on medical claims with associated diagnoses. Patients were followed until death or the end of 2008. Per patient per month [PPPM] total health care costs (in USD) and median survival were reported. Chemotherapy treatment patterns during the follow-up were examined. **RESULTS:** This study included 3,343 lung cancer patients (mean age: 67.1 years; 34.5% female; 35.4% secondary lung cancer). Median survival was 8.1 months. PPPM costs were $2,322 USD (interquartile range $450-$2,902). Lifetime costs from diagnosis among those who died during the study period were $12,788 USD (interquartile range $2,674-$17,546). Of the 1,633 patients who received chemotherapy during the follow-up, 375 received only one chemotherapy agent (gemcitabine 35.7%, vinorelbine 20.5%, platinum-based agents 20.3%, UFUR 8.3%, taxanes 7.7%, etoposide 7.5%). Close to three quarters (74.8%) of treated patients received combination therapy with platinum-based agents. Of 1,221 patients treated with platinum-based combination therapy, the therapy most commonly used includes gemcitabine (37.5%), taxanes (21.5%), and vinorelbine (18.2%), while 21.4% of patients received two or more other agents. We observed longer median survival in patients with a higher number of chemotherapy agents received. **CONCLUSIONS:** Lung cancer patients in Taiwan incurred considerable health care costs after diagnosis. More than half of patients were treated with chemotherapy, in particular with multiple chemotherapy agents. Future research comparing cost-effectiveness among different treatment options is warranted.

PCN71

AUSTRALIAN STANDARD COSTS AND CONSEQUENCES OF FOUR CHEMOTHERAPY ADVERSE EVENTS

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OBJECTIVES: This work aimed to develop rigorous models of the Australian costs of four common chemotherapy adverse event (diarrhoea, vomiting, anaemia and neutropenia), which provide standard cost estimates and can be used in future models of chemotherapy cost effectiveness. **METHODS:** Decision analytic modelling was used to identify the costs and consequences of AEs. These are not only stand alone models, but also form decision tree sections to be incorporated into larger models of chemotherapy cost effectiveness. Model structures are based on best-practice clinical pathways, and incorporate efficacy of side effect treatment, quality of life and chemotherapy dose. Literature reviews identified clinical inputs. Costs of treatment were obtained from standard Australian sources such as the Pharmaceutical Benefits Schedule. The perspective was the Australian health care system. One-way sensitivity analyses explored uncertainty in the models. **RESULTS:** The base case average cost per patient of diarrhoea ranged from $19 (mild AE) to $4,821 (severe AE); those for anaemia ranged from $51 (mild AE) to $17,100 (moderate AE) depending on the type of chemotherapy and anaemia treatment. Vomiting prevention base case costs ranged from $0.84 (low risk chemotherapy) to $157.55 (high risk chemotherapy requiring breakthrough and refractory management). Neutropenia base case costs ranged from $2,235 (outpatient management) to $12,054 (intensive care required). Where possible, the impact on quality of life and chemotherapy total dose was also modelled. Estimates of AE costs vary widely in the literature, however our estimates appear consistent with studies of similar methodology. **CONCLUSIONS:** The four models presented represent best-practice modelling techniques for chemotherapy AEs. Each has been designed to enable either the results or the model structure to be incorporated into larger models of chemotherapy cost effectiveness. This allows model builders to incorporate rigorous, Australian-specific estimates of the costs and consequences of chemotherapy AEs into models of chemotherapy cost effectiveness.

PCN72

HORMONAL RECEPTOR POSITIVE, HER2 NEGATIVE METASTATIC BREAST CANCER (MBC HR+HER2-): PRE AND POST-PROGRESSION COSTS UNDER THE PUBLIC HEALTH CARE SYSTEM (SUS) AND SOCIETAL PERSPECTIVES IN BRAZIL

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OBJECTIVES: To estimate direct medical costs and productivity costs of hormonal receptor positive, HER2 negative metastatic breast cancer (MBC HR+ HER2-) under the public health care system (SUS) and societal perspectives in Brazil, being MBC cost data very scarce in Brazil so far. **METHODS:** A systematic literature review was performed in the following databases: Cochrane, MEDLINE via Pubmed, LILACS, EMBASE and CRD until FEB 2013. Gray literature was also included. National guidelines search and expert validation was carried out specifically for the direct medical cost estimations. Direct medical costs were stratified as pre and post-progression costs and terminal costs. Pre and post-progression costs considered outpatient, inpatient and monitoring costs. For post-progression, metastasis treatment costs were also estimated, including bone, lung, liver and brain metastasis. For the productivity costs, the Human Capital method was chosen. Days of absenteeism were obtained from the literature and a Markov model was used to estimate the loss of productivity in 1 year (as the mean age of MBC in Brazil is 59 and official retirement at 60 years of age). Unit costs were obtained from Brazilian official lists and IBGE (income). All costs are expressed in 2012 Brazilian Real (BRL). **RESULTS:** Pre, post-progression and terminal costs of MBC HR+HER2-were estimated in BRL308, BRL731 and BRL4.164 respectively, under SUS perspective. Post-progression metastasis treatment costs presented an average of BRL12.047 under SUS perspective. The productivity costs were estimated in BRL26.056 under the societal perspective considering the available treatments at SUS for MBC HR+HER2- patients. **CONCLUSIONS:** MBC HR+HER2- post-progression costs impose a significant economic burden under SUS perspective as well as productivity losses to the society. Novel therapies that postpone progression in those patients may reduce costs associated.

PCN73

ESTIMATING THE COST OF HPV-RELATED DISEASES IN TURKEY: A DELPHI APPROACH

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OBJECTIVES: Very limited data is available on the cost and burden of HPV-related diseases in Turkey. The aim of our analysis is to evaluate the corresponding cost through understanding the current clinical practices, use of resources and treat-

ment algorithms based on expert opinion. **METHODS:** This study uses the Delphi method to reach experts' consensus on the clinical practices currently being used in Turkey. Delphi method has been widely used in medical areas where empirical data is scarce. The survey developed for this study includes questions to understand the clinical resource use in order to calculate the associated costs. Although the panelists' answers are unlikely to change after the second iteration according to the literature, a three-iteration panel was needed to reach a consensus in practice. The consensus is then used to calculate the cost of an episode of care for genital warts (GW), CIN 1, CIN 2/3, different cervical cancer stages from the payer's perspective. **RESULTS:** TDP-HPV included a total of 10 experts, including gyneco-oncologists, dermatologists and a medical oncologist. The cost of a GW episode of care is approximately USD 263.58 to the government. CIN 1 cases are only treated if the disease persists for 2 years, which happens in about 5% of cases. The cost of a CIN 1, CIN 2/3 episode of care is calculated as USD 127, USD 262 to the government, respectively. The cervical cancer (CC) stages are divided into local CC, regional CC, and distant CC. The costs associated with these states are USD 1,340, USD 4,345, and USD 8,150. **CONCLUSIONS:** Early diagnosis and treatment is crucial from the cost perspective too as a more severe disease costs more. GWs are sometimes left out when HPV-related diseases are considered. However, this study mentions that GW presents a serious burden to the society.

PCN74

COSTS OF HER 2 NEGATIVE, HORMONAL RECEPTOR POSITIVE, METASTATIC BREAST CANCER (MBC-HR+) TREATED WITH EVEROLIMUS (EVE) + EXEMESTANE (EXE) IN THE BRAZILIAN PRIVATE SYSTEM (BPS): A REAL WORLD (RW) AND PUBLISHED LITERATURE ANALYSIS

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OBJECTIVES: EVE in association with aromatase inhibitor was recently approved by ANVISA (Brazilian Regulatory Agency) for MBC-HR+ patients. EVE redefines the role of endocrine therapy in MBC-HR+ reversing endocrine resistance. The aim of this study is to determine the costs associated to the introduction of EVE + EXE for the Brazilian private system population. **METHODS:** A previous study from real-world (RW) data between 2011-12 (large private database of medical claims for chemotherapy (CT), Evidencias Database) and published data identified MBC-HR+ patients and evaluated costs of treatments and adverse events (AEs), by a micro-costing approach. Patients were divided into three groups, according to metastasis: bone exclusive (B), Visceral exclusive (V) and Bone plus Visceral (BV). For this study the financial impact of the adoption of EVE+EXE was calculated in this population, based on the previous findings. Direct medical costs of EVE, hormones, CT, hospitalization, supportive care, radiation, monitoring and AEs were considered. A cohort of 100 patients with MBC-HR+ was simulated in a decision tree to obtain the costs for each group and the mean cost/ patient. Costs were estimated in 2013 Brazilian Real (R$). **RESULTS:** RW data showed the following distribution of patients: B 38%, V 42% BV 20%. Lengths of treatment (months) were B 25.1-30, V 16.1; BV 14-19.6. Mean costs/patient/group, before EVE+EXE adoptions, were B R$135.744 (US$67,872), V R$129.079 (US$64,539) and BV R$117.172 (US$58,568). If EVE+EXE substituted 80% or 50% of the current treatments, the incremental percentage of costs would be B (5%; - 9%), V (5,7%; -16%) and BV (22%; 14%). Costs with AEs were at least 50% lower with the use of EVE+EXE. **CONCLUSIONS:** EVE adoption in association with EXE may be cost saving for some groups of MBC-HR+ patients. For other groups, the incremental cost is not superior to 22%.

PCN75

ESTIMATED COSTS OF HER2-POSITIVE METASTATIC BREAST CANCER FOR PATIENTS INITIATING AN ORAL ANTICANCER TREATMENT: RESULTS FROM A FRENCH PROSPECTIVE OBSERVATIONAL STUDY

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OBJECTIVES: To assess the cost of HER2-positive (HER2+) metastatic breast cancer (mBC) for patients initiating an oral anticancer treatment (OAT) from the perspective of the French National Health Insurance (NHI). **METHODS:** A prospective observational multicenter study was conducted among 284 HER2+ mBC patients treated by 68 oncologists initiating a treatment containing an OAT between March 2011 and February 2012. Costs data were available for 199 patients. Clinical characteristics, treatment patterns, quality-of-life, adherence and health care resources data were collected. Health care resource use data on hospitalization, medical consultation, drug and radiation-therapy were reported by oncologists at treatment initiation and after each 3-month period during a 9 months maximum period. Cost estimations were based on unit costs from national databases (French Diagnosis Related Group cost database and NHI database for drug unit cost). **RESULTS:** A total of 109 patients (55%) received an OAT only and 90 (45%) received oral and intravenous (IV) drugs. Thirty patients (15%) were treated with radiation therapy and 43 patients (22%) with hormonal-therapy in addition to chemotherapy. The overall average cost of management per patient was 28,482€ ± 14,914 for all patients, 19,412€ ± 9,462 for patients with an OAT only and 39,467€ ± 12,770 for patients with oral and IV drugs. Drug costs were 27,669 € ± 14,976 and they represented 97% of the total hospital cost of management (hospitalizations, consultations and drugs). **CONCLUSIONS:** This prospective observational study conducted among HER2+ mBC patients shows that the route of drug administration has an impact on treatment costs. Nevertheless, the study design does not allow concluding that OAT were associated with lower costs and cost savings. These finding however warrants further exploration within the context of micro-costing studies from the hospital and community perspective in order to better understand the health care resources used that are required to manage patients treated with OAT.

PCN77

INPATIENT HOSPITAL COSTS OF FEBRILE NEUTROPENIA (FN) AS A CONSEQUENCE OF CHEMOTHERAPY (CHT) FOR BREAST CANCER (BC) AND NON-HODGKIN LYMPHOMA (NHL) IN SWITZERLAND

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OBJECTIVES: FN can be a serious complication of CHT, increasing mortality risk and health care costs. Incidence and inpatient hospital costs of FN in Switzerland are currently not reported; therefore this study aimed to: 1. Estimate the number of FN-related hospitalizations. 2. Assess inpatient hospital costs per FN event in Switzerland. **METHODS:** The main data source was MedStat, a comprehensive database of all Swiss hospitalizations from 1997-2010. BC and NHL cases were identified from ICD-10-GM codes. Hospitalizations for FN were identified by a simultaneous code of BC or NHL and neutropenia. Incident cases of cancer were identified as patients treated in 2010 for the first time since 2002. Results were compared to data from the Foundation National Institute for Cancer Epidemiology and Registration (NICER). Cost data stems from the cantonal hospital of Winterthur. **RESULTS:** Using MedStat data, 645 male and 557 female NHL patients and 6'391 female BC patients were hospitalized in 2010 for the first time. Corresponding annual incidence data from NICER were 780 male and 688 female NHL patients and 5'388 female BC patients. The proportion of hospitalizations due to FN was 8.2% (190/2'311) among male and 6.0% (123/2'063) among female NHL patients, and was 2.6% (255/9'650) among female BC patients. In-hospital mortality of FN cases was 9.5% for men and 5.7% for women with NHL, and 4.3% for BC. Median inpatient treatment costs for an FN event were CHF 8'399 (mean: CHF 14'006) in NHL and CHF 4'208 (mean: CHF 10'020) in BC. Nursing time was the most important cost component and length of stay was the most important driver of total inpatient cost. **CONCLUSIONS:** 3% to 8% of all hospitalizations in NHL and BC patients were due to FN. Our results suggest that FN leads to considerable risk of death and incurs high in-hospital care cost in Switzerland.

PCN78

COST ASSESSMENT OF METASTATIC AND NON-METASTATIC CASTRATION-RESISTANT PROSTATE CANCER PATIENT-MANAGEMENT IN SPAIN

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OBJECTIVES: To compare annual management costs of castration-resistant prostate cancer (CRPC) patients at high risk of developing bone metastases (BM) versus those that already had BM in Spain. **METHODS:** An expert panel of 5 urologists and 3 oncologists from Spanish health centres was asked to estimate the mean annual resource use in the management of non-metastatic CRPC patients and in the first, second and subsequent years after developing BM. Hospital resources were stratified into four major categories: 1) general resources [medical visits, diagnostic and monitoring procedures, hospital admission and surgeries], 2) hormone therapy, 3) chemotherapy and 4) analgesic treatments. The last three categories included: drug costs, adverse event (AE) management-costs and pre-medication costs. Skeletal-related events (pathological fracture, radiation or surgery to bone and spinal cord compression) often suffered by BM patients were excluded from the analysis as Spanish cost-related data had recently been published. Unit costs (€, 2013) for each identified resource were obtained from a national cost-database. **RESULTS:** Total management-related annual costs for non-metastatic CRPC patients were €2,691.57; €978.51 were hormone therapy drug costs, €11.10 analgesics costs and €243.55 AE management costs. No chemotherapy was administered in these patients. Annual management cost for BM patients was €6,000.37 the first year, €14,468.35 the second year and €14,313.87 in subsequent years. Hormone therapy drug costs accounted for €946.67, €948.13 and €948.13 in the first, second and subsequent years, while chemotherapy costs accounted for €1,892.21 (32.2%); 9,485.41 (66.2%) and €9,143.92 (64.4%), respectively. Analgesic costs increased from €597.29 (first year) to €915.16 and €1,031.20 (second and subsequent years) and AE management costs increased from €595.63 (first year) to €758.58 (second year) and €732.14 (subsequent years). **CONCLUSIONS:** CRPC patients with BM had higher management costs than non-metastatic patients especially after the first year of treatment, which was mainly due to chemotherapy drug costs.

PCN79

ECONOMIC BURDEN OF TOXICITIES ASSOCIATED WITH ADVANCED MELANOMA TREATMENTS IN FRANCE, ITALY, THE NETHERLANDS, AND SPAIN

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OBJECTIVES: Little is known about costs of managing adverse events (AEs) associated with currently-available therapies in advanced melanoma. This study identifies and estimates the costs of these AEs in France (FR), Italy (IT), The Netherlands (NL), and Spain (ES). **METHODS:** A comprehensive literature search was conducted to identify common grade 3/4 AEs from product labels and published phase II/III advanced melanoma studies in PubMed, conference abstracts, and European treatment guidelines. Resource utilizations for the management of each type of AE in typical inpatient/outpatient treatment setting were determined via in-depth interviews with 5 melanoma clinicians in each country. Outpatient and inpatient 2012 costs were then estimated for each type of AE by applying country-specific tariffs, except in Spain where costs were obtained from government database or best published sources. **RESULTS:** Most frequent grade 3/4 AEs associated with chemotherapies included neutropenia, vomiting, and anemia. Vemurafenib was commonly associated with cutaneous squamous cell carcinoma (CSCC)/keratoacanthoma, rash, and